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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,118	01/16/2004	Juergen Hartmaier	Q79392	5044

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EXAMINER	
SHAFER, RICKY D	
ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/758,118	HARTMAIER ET AL.	
	Examiner	Art Unit	
	Ricky D. Shafer	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *3-5 and 26-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 6-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/16/2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/30/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election of species "B', depicted by Fig. 2, in the reply filed on 04/13/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 3-5 and 26-32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 04/13/2006.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 6, 22 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6, line 3, the use of the language "up to 2% and up to 1 mm" is vague and indefinite due to the fact that the claim limitations stated above must be recited in the alternative.

Claim 22 is vague and indefinite due to the fact that the claim would appear to obviate/remove the limitation of a $\lambda/4$ plate from being arranged between the beam splitter and the concave mirror, as required by claim 15, lines 6-7. Thus, the claim is considered to be indefinite.

Claim 25 is vague and indefinite due to the fact that the claim would appear not to be drawn to any statutory class of invention. The claim is neither drawn to a product nor a method

(process) due to the fact the claim fails to recited any method steps. Thus, the metes and bounds of the claim is unclear.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2 and 7 are rejected under 35 U.S.C. 102(a) as being anticipated by Burnett et al, "Minimizing spatial...the birefringence".

Burnett et al discloses a retardation element having an optical axis and consisting of an alkaline-earth metal fluoride crystal having a <110> crystal axis (see Table 1), wherein the optical axis of the crystal inherently points approximately in the direction of the <110> crystal axis of the crystal or a main crystal axis equivalent thereto in order to measure the birefringence of the crystal, wherein the alkaline-earth metal fluoride crystal is one of a calcium fluoride crystal and a barium fluoride crystal (see Table 1), wherein the retardation element inherently has an entry face for incident light and an exit face for exiting light, wherein at least one of the entry face and the exit face is provided with a refractively or diffractively active structure or shape due to the fact that the crystal can take the form of a lens, which can be employed in a photolithographic projection system (see Abstract).

7. Claims 1, 2, 7-14 and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Shiraishi et al ('893).

Shiraishi et al discloses a microlithography projection exposure machine (see Fig. 1 and paragraphs 0154-0157) comprising an illumination system (1, 3a, 3b) and a projection objective (100, 200, 300) for imaging a pattern-bearing mask (101, 201, 301) onto a photosensitive substrate (102, 202, 302), wherein the microlithography projection exposure machine has at least one calcium fluoride crystal retardation element (105, 106, 109, 110, 205, 206, 305, 306, 311, 312) having an optical axis and consisting of an alkaline-earth metal fluoride crystal having a <110> crystal axis, wherein the optical axis pointing approximately in the direction of the <110> crystal axis of the crystal or a main crystal axis equivalent thereto (see paragraphs 0088, 0093, 0104, 0116, 0118, 0119, 0121, 0123, 0127, 0131, 0132, 0138, 0145, 0147, 0150 along with Figures 10a and 10b), wherein the retardation element having an entry face for incident light and an exit face for exiting light, wherein at least one of the entry face and the exit face is provided with a refractively or diffractively active structure or shape (see figures 2, 4a, 4b, 7a, 7b, 8, 9a, 9b, 11, 12a, 12b), wherein the retardation element has a diameter in the range from 50 to 300 mm (see paragraph 0154), wherein the retardation element is inherently mounted in an unstressed fashion, wherein the retardation element is designed as a lens element with a positive or negative refracting power, wherein the retardation element is designed as a meniscus-shaped lens with a negative refracting power (see figures 2, 4a, 4b, 7a, 7b, 8, 9a, 9b, 11, 12a, 12b), wherein the retardation element has two optical faces, a shape of the optical faces and an installation position of the retardation element in an optical system being adapted to one another in such a way that the light path of beams inside the retardation element is larger between the optical faces the

larger the angle is between a penetrating beam and the optical axis of the retardation element (see figures 2, 4a, 4b, 7a, 7b, 8, 9a, 9b, 11, 12a, 12b), wherein the retardation element being a lens made from a cubic crystal material with intrinsic birefringence and having a radius and a thickness, wherein as a function of the radius, the thickness has an approximately parabolic profile with radially increasing thickness (see figures 2, 4a, 4b, 7a, 7b, 8, 9a, 9b, 11, 12a, 12b). Note figures 1-13 along with the associated description thereof.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

8. Claims 1, 2 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakuma et al ('634).

Sakuma et al discloses a retardation element having an optical axis and consisting of an alkaline-earth metal fluoride crystal having a <110> crystal axis (see Table 3), wherein the optical axis of the crystal inherently points approximately in the direction of the <110> crystal axis of the crystal or a main crystal axis equivalent thereto in order to measure the birefringence of the crystal, wherein the alkaline-earth metal fluoride crystal is one of a calcium fluoride crystal and a barium fluoride crystal (see Table 3), wherein the retardation element inherently has an entry face for incident light and an exit face for exiting light, wherein at least one of the entry face and the exit face is provided with a refractively or diffractively active structure or shape due to the fact that the crystal can take the form of a lens (see column 13, lines 25-30) which can be employed in a photolithographic projection system (see column 1, lines 11-18).

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 6 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burnett et al, "Minimizing spatial...the birefringence" or Sakuma et al ('634).

To the extent the claims are definite, Burnett et al and Sakuma et al each disclose all of the subject matter claimed, note the above explanation, except for explicitly stating the size, shape and thickness profile of the lens.

It is well known to use lenses having the size, shape and thickness profile, as recited by applicant, in the same field of endeavor for the purpose of reducing aberrations.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the calcium fluoride crystal lens of Burnett et al or Sakuma et al, to include the size, shape and thickness profile, as recited by applicant, in order to similarly reduce aberrations.

11. Claims 14 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burnett et al, "Minimizing spatial...the birefringence" or Sakuma et al ('634).

To the extent the claims are definite, Burnett et al and Sakuma et al each disclose all of the subject matter claimed, note the above explanation, except for explicitly stating the components of the photolithography projection system.

It is well known that photolithography projection systems include an illumination system

and catadioptric projection objective for imaging a pattern bearing mask onto a photosensitive substrate in the same field of endeavor for the purpose exposing a photosensitive substrate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify at least one of the lenses of a conventional catadioptric projection objective to include a calcium fluoride crystal material, as taught by Burnett et al or Sakuma et al, in order to similarly image a pattern bearing mask onto a photosensitive substrate.

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the

scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1, 2, 7 and 10-22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 8, 11, 13-15, 19, 20 and 22-27 of copending Application No. 11/019,202. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present application (10/758,118) discloses no additional invention or discovery other than what is already being claimed in copending Application No. 11/019,202 or what would have been obvious to one of ordinary skill in the art at the time the invention was made.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

14. Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 11/182,599. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present application (10/758,118) discloses no additional invention or discovery other than what is already being claimed in copending Application No. 11/182,599 or what would have been obvious to one of ordinary skill in the art at the time the invention was made.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

15. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the microlithography projection

exposure machine, the illumination system, the pattern-bearing mask, the photosensitive substrate and the semiconductor elements must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

16. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: element 47, disclosed on page 16 of the specification has not properly illustrated/labeled. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

17. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: element 120, shown in Fig. 3, lacks a proper written description. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

18. Claim 22 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 22 fails to further limit the subject matter of claim 15, lines 6-7 due to the fact that the claim would appear to obviate/remove the limitation of a $\lambda/4$ plate from being arranged between the beam splitter and the concave mirror.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ricky D. Shafer whose telephone number is (571) 272-2320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RDS

June 18, 2006

RICKY D. SHAFER
PATENT EXAMINER
ART UNIT 2872